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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/581,802

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Rainer Papp

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EXAMINER

WITHERSPOON, SIKARL A

ART UNIT

PAPER NUMBER

1621

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,802	Applicant(s) PAPP ET AL.	
	Examiner Sikarl A. Witherspoon	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/5/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8-10, 14, 15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Falbe (GB 1,170,226) in view of Becker et al (US 5,728,893).

The instant claims are drawn to a process for preparing tricyclodecanedialdehyde by hydroformylating dicyclopentadiene in the presence of an unmodified rhodium catalyst, in at least two reaction zones, wherein the temperature in a subsequent reaction zone is at least 5° C higher than in the first reaction zone.

Falbe teaches the preparation of tricyclodecane dialdehydes and dimethylols by hydroformylation of dicyclopentadiene in the presence of a rhodium-containing catalyst at a temperature above 80° C and at elevated pressures, i.e., above 30 atm. The hydroformylation product (dialdehyde) may be converted to the corresponding diol either with or without separation of the rhodium catalyst; hydrogenation catalysts include nickel, chromium, and cobalt catalysts. The hydroformylation is carried out under a molar ratio of carbon monoxide to hydrogen or between 2:1 and 1:4 (p 1, line 69 to p 2, line 110).

The primary difference between Falbe and the instant invention is that Falbe does not expressly teach conducting the reaction(s) in at least two reaction zones,

Art Unit: 1621

wherein the temperature in a subsequent reaction zone is at least 5° C higher than in the first reaction zone. However, Becker et al teach a reactor useful in hydroformylation reactions, having a plurality of reaction zones connected either in series or in parallel (abstract):

It therefore would have been obvious to a person having ordinary skill in the art, at the time the present invention was made, to conduct the hydroformylation/hydrogenation reaction taught by Falbe, in a reactor having multiple reaction zones, since as suggested by Becker et al multiple reaction zones allows the reaction to be pushed to completion, with higher conversion of starting material, without having to recover and recycle the reactant through the reaction system. Absent a showing of unexpected results, the examiner takes the position that it would have been obvious to a person of ordinary skill in the art to either increase or decrease the temperature of any given reaction zone, depending on the desired level of conversion of the starting material intended for a given reaction zone.

Claims 7,11-13, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lukas et al (US 5,041,675) in view of Becker et al (US 5,728,893).

The instant claims are drawn to the preparation of diaminomethyltricyclodecane by hydroformylation of dicyclopentadiene in the presence of an unmodified rhodium catalyst, to produce tricyclodecane dialdehyde, and then performing reductive amination of the dialdehyde in the presence of molecular hydrogen and ammonia to produce the diamino-compound.

Lukas et al teach hydroformylation of dicyclopentadiene in the presence of a rhodium compound, and subjecting the dialdehyde produced, to reductive amination (abstract; col. 2, line 3 to col. 3, line 40.).

The difference between Lukas et al and the instant claim is that Lukas et al does not expressly teach conducting the reaction(s) in at least two reaction zones, wherein the temperature in a subsequent reaction zone is at least 5° C higher than in the first reaction zone. However, Becker et al teach a reactor useful in hydroformylation reactions, hydroamidation reactions, carbonylations, and the like, having a plurality of reaction zones connected either in series or in parallel (abstract).

It therefore would have been obvious to a person having ordinary skill in the art, at the time the present invention was made, to conduct the hydroformylation/reductive amination reaction taught by Lukas et al, in a reactor having multiple reaction zones, since as suggested by Becker et al multiple reaction zones allows the reaction to be pushed to completion, with higher conversion of starting material, without having to recover and recycle the reactant through the reaction system. Absent a showing of unexpected results, the examiner takes the position that it would have been obvious to a person of ordinary skill in the art to either increase or decrease the temperature of any given reaction zone, depending on the desired level of conversion of the starting material intended for a given reaction zone.

Art Unit: 1621

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 571-272-0649. The examiner can normally be reached on M-F 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

saw

Sikarl A. Witherspoon
SIKARL A. WITHERSPOON
PRIMARY EXAMINER